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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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MCKENNA LONG & ALDRIDGE LLP 1900 K STREET, NW WASHINGTON, DC 20006			EXAMINER MARKOFF, ALEXANDER	
			ART UNIT 1746	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/720,683	Applicant(s) KIM ET AL.	
	Examiner Alexander Markoff	Art Unit 1746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 May 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-6 are rejected under 35 U.S.C. 102(b) as being anticipated by any one of Spendel (US Patent No 4,489,455) and Minayoshi et al (US 200100115082 and JP 2001-178985).

All cited documents teach methods comprising conducting washing and drying cycles according to an operational program and thereafter conducting drying. The documents teach operation of pumps fans, heaters, motors, and valves during drying.

See entire documents, especially Description of the Preferred Embodiment in Minayoshi et al and columns 5-14 in Spendel.

3. Claims 1-6 are rejected under 35 U.S.C. 102(b) as being anticipated by the state of the prior art admitted by the applicants in the specification (AAPA).

The claims require the simultaneous step of dewatering and first drying be performed by driving the drum motor, fan and heater.

Such step is disclosed by the AAPA. See Figure 2, step S24.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over any one of Spendel (US Patent No 4,489,455) and Minayoshi et al (US 200100115082 and

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JP 2001-178985) in view of any one of AAPA, Hong et al (US Patent No 7,021,088), Woo et al (US Patent NO 6,722,165) and Durazzani et al (US Patent NO 4,903,508).

All primary documents teach methods comprising conducting washing and rinsing cycles according to an operational program and thereafter conducting drying. The documents teach operation of pumps fans, heaters, motors, and valves during drying. The documents teach circulating air during dewatering.

See entire documents, especially Description of the Preferred Embodiment in Minayoshi et al and columns 5-14 in Spendel.

Spendel and Minayoshi do not specifically teach supplying water to conduit during drying.

However, AAPA, Hong et al, Woo et al and Durazzani et al all teach that it was conventional in the art to spray water into the conduit to condense water from the circulating air.

It would have been obvious to an ordinary artisan at the time the invention was made to supply water into conduits of Spendel and Minayoshi during drying with reasonable expectation of success in order to increase efficiency of the drying by condensing water from the circulating air.

Claim Rejections - 35 USC § 112

8. Claims 1-6 are rejected under 35 U.S.C. 112, first paragraph, as based on a disclosure which is not enabling. The steps of maintaining the water supply valve (7) closed during simultaneous step of dewatering and first drying and maintaining the water supply valve open during the second drying step are critical or essential to the

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practice of the invention. The claims, which do not recite these steps, are not enabled by the disclosure. See *In re Mayhew*, 527 F.2d 1229, 188 USPQ 356 (CCPA 1976).

It is also noted that the referenced steps are the only steps, which differentiate the step of simultaneous dewatering and first drying from the step of second drying in a manipulating way.

Response to Arguments

9. Applicant's arguments filed 05/09/07 have been fully considered but they are not persuasive.

The applicants amended the claims and argue that the rejection made under 35 USC 112(1) is not proper.

The examiner disagrees. Claims 1-6 still do not recite the step of maintaining the water supply valve (7) closed during simultaneous step of dewatering and first drying.

The applicants amended the claims to recite supplying water during drying. This limitation is addressed in the rejection above.

The applicants again argue that Minayoshi et al do not teach a step wherein dewatering and drying are conducted simultaneously with circulating air.

This argument is not persuasive and was previously addressed. The examiner's response is repeated below.

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The applicant's argument contradicts to the teaching of Minayoshi et al. See at least Abstract and the detailed description of the referenced step at Figures 3, 4, 5 and description at [0052] – [0072], [0074]-[0091] and [0098]-[0119].

[0052] Next, an operation of the hydro-extraction process will be described in detail according to a flowchart of FIG. 3, when a "continuous wash-to-dry operation program", which performs a series of processes including washing, rinsing, hydro-extraction and drying, is set with the input setting unit 31 at a beginning of the operation.

[0053] Step 41

[0054] Make determination as to whether a drying process is programmed after the hydro-extraction process.

[0055] Proceed to step 42 if a drying process is programmed, or proceed to step 46 if not programmed.

[0056] Step 42

[0057] Turn on the drying blower 15 to deliver air into the inner tub 4. Shift mechanical transmission to a hydro-extraction side so as to connect the motor 8 and the inner tub 4 with the clutch 9, while the air is kept delivered. Rotate the motor 8 to spin the inner tub 4 at a high hydro-extraction speed, to begin the hydro-extraction.

[0071] According to the present exemplary embodiment, as described, the drying blower 15 is activated to deliver air into the inner tub 4, while the inner tub 4 is spun at the high hydro-extraction speed during the hydro-extraction process. Delivery of the air facilitates dispersion and extraction of water contained in the clothes, thereby improving performance of the hydro-extraction. As a result, there provides for the possibility of shortening drying time without increasing a number of forward and reverse rotations of the rotary impeller 6 in the subsequent drying process, so as to reduce damages to the

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clothes due to friction with the rotary impeller 6 as well as among the clothes themselves.

[0074] A combination washer-dryer of this exemplary embodiment has a configuration analogous to that of the first exemplary embodiment. Its sectional view is identical to what is shown in FIG. 1. In addition, a circuit block is also identical to the one shown in FIG. 2.

[0075] A controller 29 executes a hydro-extraction process automatically before going into a drying process, in the same manner as the first exemplary embodiment, when a "drying operation program" is set. In this exemplary embodiment, a drying blower 15 and a heater 16 are activated during the hydro-extraction process, so that an inner tub 4 is driven by a motor 8 while maintaining delivery of warm air into the inner tub 4.

[0076] Next, operation of the hydro-extraction process will be described according to a flowchart of FIG. 4, when a "continuous wash-to-dry operation program" is set with an input setting unit 31.

[0077] Step 51

[0078] Make determination as to whether a drying process is programmed after the hydro-extraction process.

[0079] Proceed to step 52 if a drying process is programmed, or proceed to step 46 if not programmed.

[0080] Step 52

[0081] Turn on the drying blower 15 and the heater 16 to deliver warm air into the inner tub 4. Shift mechanical transmission to a hydro-extraction side with a clutch 9 so as to connect the motor 8 and the inner tub 4, while the warm air is kept delivered. Rotate the motor 8 to spin the inner tub 4 at a high hydro-extraction speed. This begins the hydro-extraction.

[0082] Step 53

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[0083] Proceed to step 54 when hydro-extraction time (t53) exceeds a predetermined time (T53).

[0084] Step 54

[0085] Turn off the drying blower 15 and the heater 16 to stop the delivery of warm air into the inner tub 4.

[0086] Return the mechanical transmission to a wash side with the clutch 9. This stops rotation of the motor 8 and the inner tub 4, and proceed to the drying process.

[0087] Steps 46 through 48

[0088] Description will be skipped for these steps, since they are same as the steps 46 through 48 described in the first exemplary embodiment.

[0089] What has been described above is the operation of the hydro-extraction process, when the "continuous wash-to-dry operation program" is set with the input setting unit 31 at the start of the operation.

[0090] If a "dry operation program" is programmed with the input setting unit 31 at the start of the operation, the processes of steps 51, 52, 53 and 54 of FIG. 4 are performed, followed by the operation of a drying process.

[0091] According to the present exemplary embodiment, as described, the inner tub 4 is spun at the high hydro-extraction speed, while the drying blower 15 and the heater 16 are activated to deliver warm air into the inner tub 4 during the hydro-extraction process. The warm air facilitates dispersion and evaporation of water contained in the clothes. It further improves performance of the hydro-extraction, since the warm air circulates easily throughout the entire clothes. As a result, there provides for the possibility of shortening a drying time without increasing a number of forward and reverse rotations of the rotary impeller 6 in the subsequent drying process, so as to reduce damages to the clothes due to friction with the rotary impeller as well as among the clothes themselves. It also reduces uneven dryness and wrinkles due to the agitation.

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[0098] Make determination as to whether a drying process is programmed after the hydro-extraction process.

[0099] Proceed to step 62 if a drying process is programmed, or proceed to step 46 if not programmed.

[0100] Step 62

[0101] Turn on the drying blower 15 and the heater 16 to deliver warm air into the inner tub 4. Shift mechanical transmission to a hydro-extraction side with a clutch 9 so as to connect the motor 8 and the inner tub 4, while warm air is kept delivered. Rotate the motor 8 to spin the inner tub 4 at a high hydro-extraction speed. This begins the hydro-extraction.

[0102] Step 63

[0103] Proceed to step 64 when hydro-extraction time (t63) exceeds a predetermined time (T63).

[0104] Steps 64 and 65

[0105] Turn off the motor 8 to stop the inner tub 4. Proceed to step 66 when an elapsed time (t65) after the motor 8 is turned off exceeds a predetermined time (T65).

[0106] Steps 66 and 67

[0107] Turn on the motor 8 in step 66, to spin the inner tub 4. This continues operation of the hydro-extraction.

[0108] Proceed to step 51 when a number of operations (n) repeated for step 66 becomes equal to a predetermined number (n1). Or, return to step 63, if the number of operations is less than n1.

[0109] Step 68

[0110] Turn off the drying blower 15 and the heater 16 to stop the delivery of warm air into the inner tub 4.

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[0111] Return the mechanical transmission to a wash side with the clutch 9. Turn off the motor 8 to stop spinning of the inner tub 4, then proceed to the subsequent drying process.

[0112] Steps 46 through 48

[0113] Description will be skipped for these steps, since they are same as the steps 46 through 48 described in the first exemplary embodiment.

[0114] What has been described above is the operation of the hydro-extraction process, when the "continuous wash-to-dry operation program" is set with the input setting unit 31 at the start of the operation.

[0115] If a "dry operation program" is set with the input setting unit 31 at the start of the operation, the processes of steps 61 through 68 of FIG. 5 are performed, followed thereafter by the operation of a drying process.

[0116] According to the present exemplary embodiment as described, the drying blower 15 and the heater 16 are activated to deliver warm air into the inner tub 4 during the hydro-extraction process. Since the inner tub 4 repeats spinning and a pause alternately while receiving blown air, the air either cool or warm can facilitate dispersion and evaporation of water contained in the clothes, thereby improving performance of the hydro-extraction. Furthermore, delivery of the warm air prolongs duration for the warm air to stay circulating throughout the entire clothes, thereby rising a drying temperature and further improving performance of the hydro-extraction.

[0117] With the hydro-extraction as described above, the drying time can be shortened in the succeeding drying process without increasing a number of forward and reverse rotations of the rotary impeller 6. It can therefore reduce damages to the clothes due to friction with the rotary impeller 6 as well as among the clothes themselves. It can also reduce uneven dryness and wrinkles due to the agitation.

[0118] In this exemplary embodiment, the inner tub 4 is- spun at the high hydro-extraction speed without delivering warm air into the inner tub 4, when the drying process is not programmed as a succeeding process. However, the inner tub 4 may be spun at the

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high speed while delivering warm air into the inner tub 4, even if the drying process is not programmed. Delivering the warm air in this way can disperse and evaporate water contained in the clothes, so as to improve performance of the hydro-extraction. It can also remove water with a finish of fine appearance.

[0119] Moreover, although both the drying blower 15 and the heater 16 are activated to deliver warm air into the inner tub 4 during the hydro-extraction process in this exemplary embodiment, only the drying blower 15 may be activated.

Minayoshi et al not only teach circulating air during dewatering, but also teach benefits of such operation.

The applicants again argue that Spendel does not teach a step wherein dewatering and drying are conducted simultaneously with circulating air.

This argument is not persuasive and was previously addressed. Spendel in contrast to the applicant's statement teaches circulating air in all steps prior to the last drying. See the parts of the document cited in the rejection, especially column 8, line 6 – column 9, line 21 and column 14, lines 18-35. The applicants attention is directed to the fact that the diverted valve 168 is actuated from the first position to the second position after the step of centrifugation. Prior to that moment the valve is in the first position, in which it enables circulation of the heated air.

The applicants argue that AAPA does not teach the claimed steps.

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The examiner disagrees. The manipulative steps disclosed by AAPA are the same as claimed.

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexander Markoff whose telephone number is 571-272-1304. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Barr can be reached on 571-272-1414. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Alexander Markoff
Primary Examiner
Art Unit 1746

AM

ALEXANDER MARKOFF
PRIMARY EXAMINER